

DATE: December 5, 2005

TO: Division Administrators
Region Engineers
Region Delivery Engineers
TSC Managers
Resident/Project Engineers
Region Construction Engineers

FROM: Larry E. Tibbits
Chief Operations Officer

John C. Friend
Engineer of Delivery

SUBJECT: Bureau of Highway Instructional Memorandum 2005-16
Guidelines to Establish Speed Limits in Work Zones

The attached guidelines to establish speed limits in work zones are designed to provide motorists with realistic speed limits in work zone projects when work is being performed adjacent to open traffic lanes to assure the maximum safety to roadway workers and the motoring public. The guidelines to establish speed limits in work zones, originally established in 1996, have been revised and are to be implemented in all construction projects. A work order should be issued to the contractor detailing the changes. Exceptions to these guidelines (i.e., where the typical cannot be applied to the work zone field conditions) will be dealt with on an as needed basis through the contract documents.

Since 1988, changes in the Michigan Vehicle Code have affected work zone speed limits in Michigan, resulting in different speed limit criteria being applied from region to region. These inconsistencies have made enforcement difficult as the motorist may see speed limits reduced 10 miles per hour in one work zone, and then see 25 miles per hour reductions in another work zone.

NCHRP Report 192, issued in 1996 and adopted by AASHTO, shows significant increases in motorist crashes and significant decreases in complying with the posted work zone speed limit when the speed is set below what is reasonable.

Establishment and use of these guidelines will provide consistent application of speed limits in all work zones for the safety and protection of the motorist and the worker, allow for better enforcement, reduce or eliminate traffic congestion, follow federal regulations, reduce crashes, all of which will contribute to a safer work zone.

Chief Operations Officer

Engineer of Delivery

BOHD:C/T:BZ:kab

Index: Traffic Control

Attachment

cc: C & T Support Area Staff
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APAM
CRAM
MAA
MCA
MCPA
MITA

2006 Guidelines
To Establish Speed Limits
in Work Zones

Work Zone Speed Limit Procedure

Condition 1 – Roadside Activity

Work activities, workers, materials, and equipment that are **more than 15 ft** from the edge of the traveled way.

Typical Applications

Construction	Utility work
Cleaning drainage	Reworking ditches
Landscaping work	Fencing work
Structural work	

Speed Limit

No reduction

There should not be a reduction to the regulatory speed limit, unless unusual situations create hazardous conditions for motorists, pedestrians, or workers. A temporary Traffic Control Order (TCO) is required **prior** to the start of work when speed reductions are required.

Work Zone Speed Limit Procedure

Condition 2 – Roadside Activity

Work activities, workers, materials, and equipment that encroach on the area closer than 15 ft, but not closer than 2 ft to the edge of the traveled way.

Typical Applications

Construction	Utility work
Culvert extensions	Side slope work
Guardrail installation	Landscape work
Cleaning drainage	Structural work
Reworking ditches	Sign installation
Shoulder work	

Speed Limits (Where Existing Speed Limits are 50 mph or Higher)

- Where workers are present with channelizing devices = 45 mph.
- Where workers are present with concrete barriers = a maximum 10 mph reduction or as geometric and physical conditions dictate.
- No workers present = a maximum 10 mph reduction or as geometric and physical conditions mandate.

Speed Limits (Where Existing Speed Limits are 45 mph or Lower)

- All conditions = a maximum of 10 mph reduction or as geometric and physical conditions mandate.
- No speed reductions where existing speed limits are 30 mph or less.

A temporary traffic control order is required **prior** to starting work if speed reductions are required.

If speed reductions are used, the factors used to determine the reduced speed shall be noted in the plans.

Example Factors for Speed Reductions During Non-Work Periods or When Barrier Wall is Present

- Horizontal curvature that might increase vehicle encroachment rate (could include mainline curves, ramps, and turning roadways).

Work Zone Speed Limit Procedure

Condition 3 – Lane Encroachment

Work activities, workers, materials, and equipment that encroach the area from within 2 ft of the edge of the traveled way to 2 ft into the lane from the edge of the traveled way. Lane closures shall be required if the remaining lane is less than 10 ft in width, excluding the channelizing devices.

Typical Applications

Roadway construction
Guardrail installation
Utility work
Shoulder work
Joint work

Speed Limits (Where Existing Speed Limits are 50 mph or Higher)

- Where workers are present with channelizing devices = 45 mph.
- Where workers are present with concrete barriers = a maximum 10 mph reduction or as geometric and physical conditions dictate.
- No workers present = a maximum 10 mph reduction or as geometric and physical conditions mandate.

Speed Limits (Where Existing Speed Limits are 45 mph or Lower)

- All conditions = a maximum of 10 mph reduction or as geometric and physical conditions mandate.
- No speed reductions where existing speed limits are 30 mph or less.

No traffic control order is required.

If speed reductions are used, the factors used to determine the reduced speed shall be noted in the plans.

Example Factors for Speed Reductions During Non-Work Periods or When Barrier Wall is Present

- Horizontal curvature that might increase vehicle encroachment rate (could include mainline curves, ramps, or turning roadways).
- Barrier or pavement edge drop-off within 2 ft of traveled way.
- Reduction in sight distance.
- Unique or special conditions.

Work Zone Speed Limit Procedure

Condition 4 – Short Duration and Mobile Activity on Shoulder

Work activities, workers, materials, and equipment that require a short duration or mobile activity on the shoulder.

Typical Applications

- Utility work
- Delineator installation
- Shoulder and slope work
- Landscape work
- Temporary and permanent signing

Speed Limit

No reduction

Example Factors of Speed Reductions During Non-Work Periods or when Barrier Wall is Present

None

Work Zone Speed Limit Procedure

Condition 5 – Lane Activity

Work activities, workers, materials, and equipment that occur in traffic lanes.

Typical Applications

Roadway construction	Pavement resurfacing
Pavement repair	Temporary pavement marking
Utility work	Bridge repair
Widening	

Speed Limits (Where Existing Speed Limits are 50 mph or Higher)

- Where workers are present with channelizing devices = 45 mph.
- Where workers are present with concrete barriers = a maximum 10 mph reduction or as geometric and physical conditions dictate.
- No workers present = a maximum 10 mph reduction or as geometric and physical conditions mandate.

Speed Limits (Where Existing Speed Limits are 45 mph or Lower)

- All conditions = a maximum of 10 mph reduction or as geometric and physical conditions mandate.
- No speed reductions where existing speed limits are 30 mph or less

No traffic control order is required.

If speed reductions are used, the factors used to determine the reduced speed shall be noted in the plans.

Example Factors of Speed Reductions During Non-Work Periods or when Barrier Wall is Present

- Lane width reduction of 1 ft or more with a resulting lane width less than 10 ft.
- Traffic control devices encroaching on a lane open to traffic or within a closed lane, but within 2 ft of the edge of the open lane.
- Reduced posted speed for taper length or speed change lane length.
- Barrier or pavement edge drop-off within 2 ft of traveled way.
- Reduced posted speed of horizontal curve.
- Reduced posted speed for stopping sight distance.
- Traffic congestion created by lane closure.
- Unique or special conditions.

Work Zone Speed Limit Procedure

Condition 6 – Temporary Detour

Some activities require a temporary detour to be constructed. Existing routes used for detours should use established speed limits in place.

Typical Applications

Roadway construction
Sub-grade restoration
Bridge construction
Culvert repair

Speed Limits

No reduction

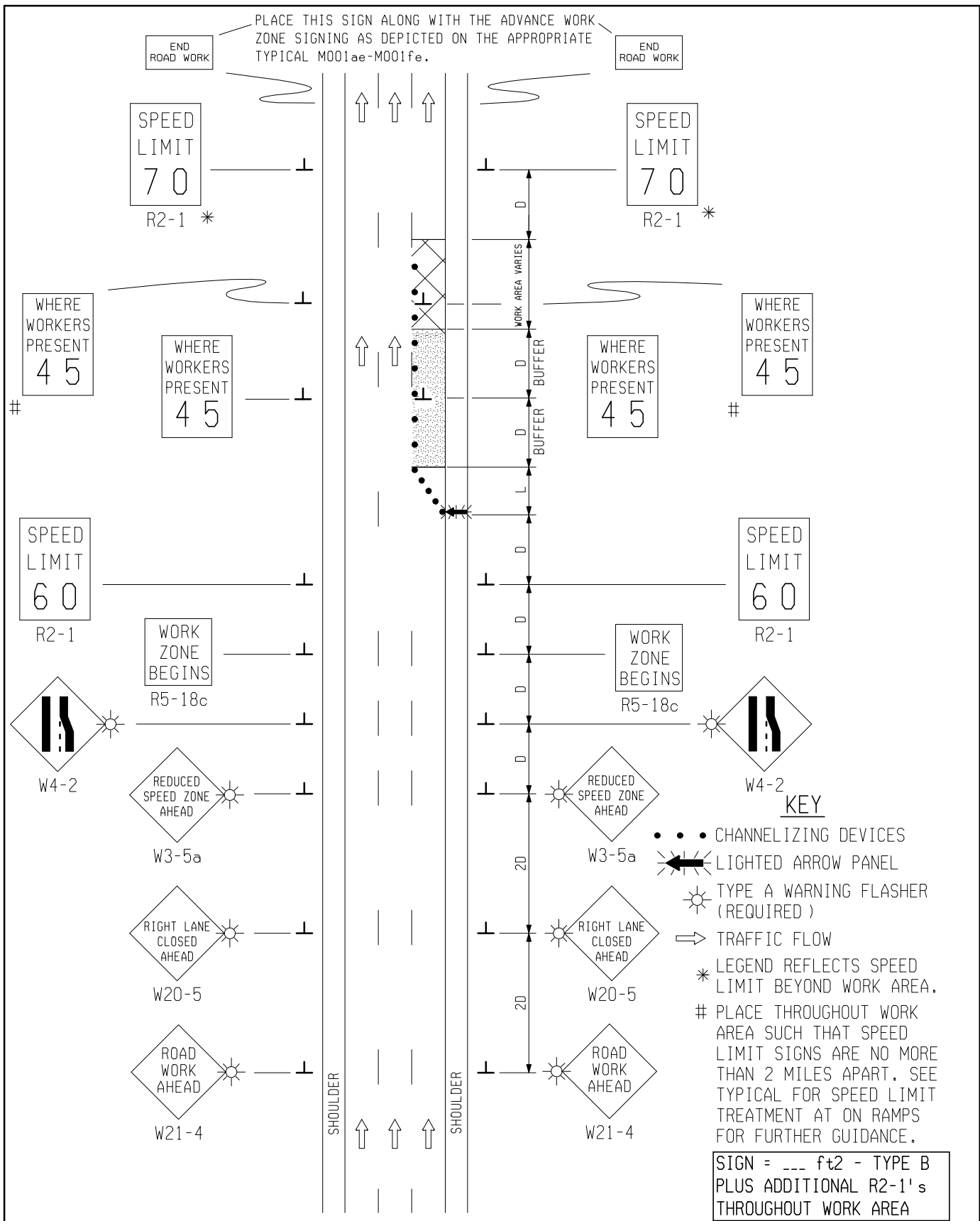
Example Factors of Speed Reductions During Non-Work Periods or When Barrier Wall is Present

None

Work Zone Speed Limit Procedure

Design Guideline Exceptions or Adjustments

1. For projects involving temporary traffic signals, no speed limit reductions shall be signed in advance of the temporary traffic signal. If the open traffic lane is restricted in width, signing for a reduced lane width with a speed advisory panel shall be used.
2. For projects involving traffic regulators, no speed reductions shall be signed in advance of the traffic regulator. Speed limit reductions shall be placed 100 feet beyond the end of the traffic regulator taper.
3. On longer projects, refer to the note sheets on the maintaining traffic typicals for additional speed limit sign placements.
4. Additional exceptions will be dealt with on an as needed basis through MDOT and within contract documents.



NOT TO SCALE



TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: KWK
CHECKED BY: BMM

TYPICAL TEMPORARY TRAFFIC CONTROL
FOR A ONE-LANE CLOSURE ON A FREEWAY
USING A REDUCED SPEED LIMIT
WHERE WORKERS PRESENT

NOVEMBER 2005
PLAN DATE:

M0790

SHEET
1 OF 1

FILE: PW:DOC/RD/TS/TYP/SIGNS/MNTTRF/M0790.dgn

REV. 11/09/05

WHERE
WORKERS
PRESENT
4 5

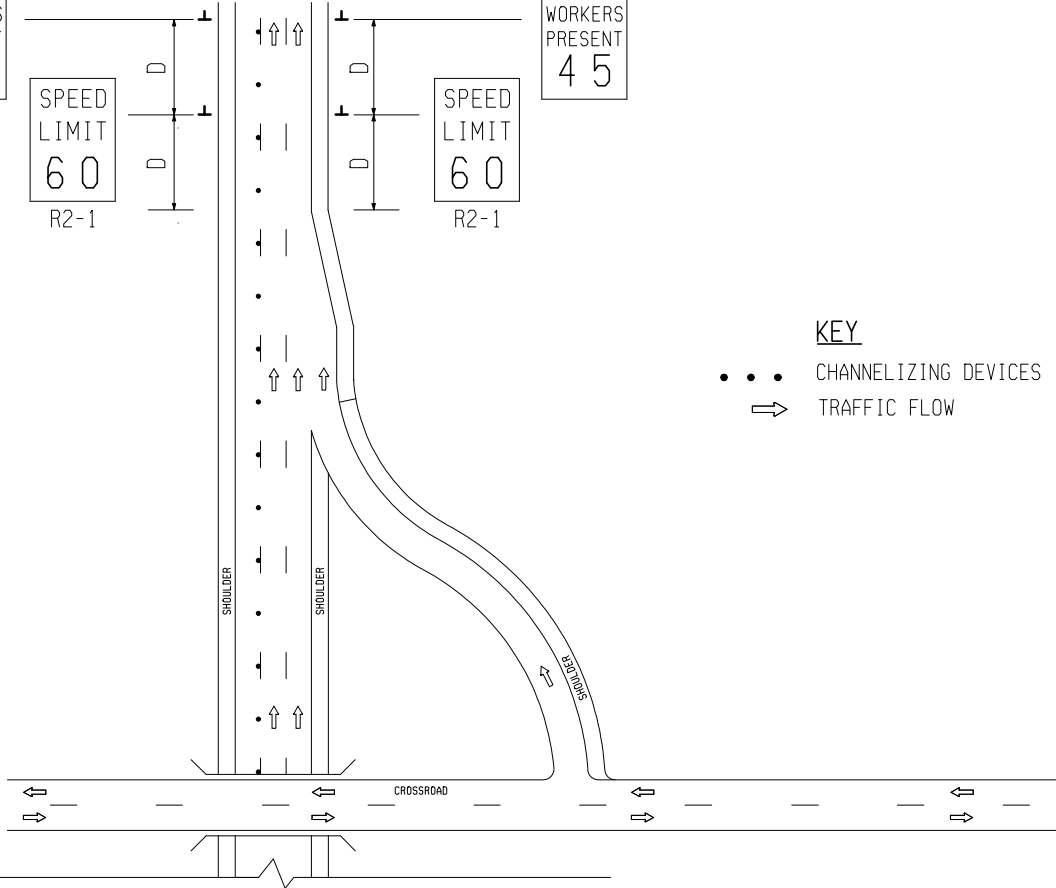
SPEED
LIMIT
60
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WHERE
WORKERS
PRESENT
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SPEED
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60
R2-1

KEY

- • • CHANNELIZING DEVICES
- ➡ TRAFFIC FLOW

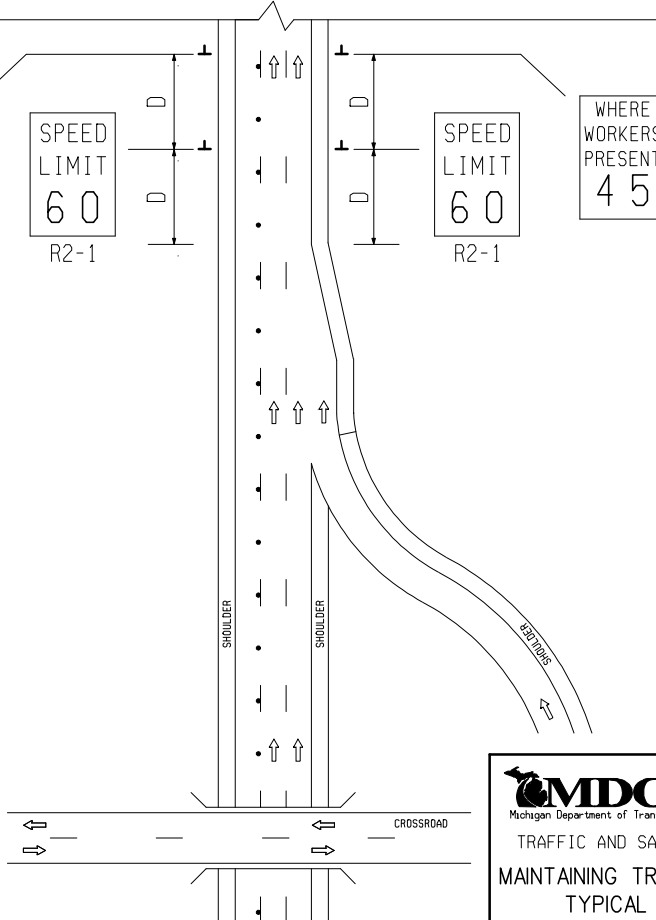


WHERE
WORKERS
PRESENT
4 5

SPEED
LIMIT
60
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WHERE
WORKERS
PRESENT
4 5

SPEED
LIMIT
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R2-1



NOT TO SCALE

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

DRAWN BY: KWK
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TYPICAL TEMPORARY TRAFFIC
CONTROL FOR SPEED
LIMIT TREATMENT AT ON RAMP
WHERE WORKERS PRESENT

NOVEMBER 2005
PLAN DATE:

M0791

SHEET
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